# DEPARTMENT of ENVIRONMENTAL SERVICES Water Division - Watershed Management Bureau

#### LAKE TROPHIC DATA

# MORPHOMETRIC:

Lake: CARR POND		Lake Area (ha):	4.45
Town: HOPKINTON		Maximum depth (m):	2.7
County: Merrimack		Mean depth (m):	1.3
River Basin: Merrimack		Volume (m³):	59250
Latitude: 43°11'39"		Relative depth:	1.1
Longitude: 71°45'50"	W	Shore configuration:	1.08
<pre>Elevation (ft):</pre>	495	Areal water load (m/yr):	3.56
Shore length (m):		Flushing rate $(yr^{-1})$ :	2.70
\ , ,	34.9	P retention coeff.:	0.72
<pre>% watershed ponded:</pre>	0.0	Lake type:	natural

BIOLOGICAL:	8 February 2000	24 June 1999
DOM. PHYTOPLANKTON (% TOTAL) #1	NO WINTER PLANKTON	ALGAE VERY SPARSE
#2	ANALYZED	(NO DOMINANT)
#3		
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		9.37
DOM. ZOOPLANKTON (% TOTAL) #1		NAUPLIUS LARVA 78%
#2		
#3		
ROTIFERS/LITER		16
MICROCRUSTACEA/LITER		99
ZOOPLANKTON ABUNDANCE (#/L)		116
VASCULAR PLANT ABUNDANCE		Abundant
SECCHI DISK TRANSPARENCY (m)		1.9
BOTTOM DISSOLVED OXYGEN (mg/L)	9.7	3.2
BACTERIA (E. coli, #/100 ml) #1		3
#2		
#3		

## SUMMER THERMAL STRATIFICATION:

# weakly stratified

Depth of thermocline (m): None Hypolimnion volume  $(m^3)$ : None Anoxic volume  $(m^3)$ : None

CHEMICAL:			CARR PONI		
	8 Febru	uary 2000	24	June 1999	
DEPTH (m)	1.0	2.0	1.0		2.0
pH (units)	5.1	5.1	5.4		5.4
A.N.C. (Alkalinity)	0.7	0.5	0.4		0.4
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN			0.40		0.90
TOTAL PHOSPHORUS	0.013	0.033	0.015		0.013
CONDUCTIVITY (µmhos/cm)	120.1	122.6	106.9		105.4
APPARENT COLOR (cpu)	50	55	34		39
MAGNESIUM			1.18		
CALCIUM			3.2		
SODIUM			14.0		
POTASSIUM			0.55		
CHLORIDE	31	32	27		27
SULFATE	6	5	4		4
TN : TP			27		69
CALCITE SATURATION INDEX			5.8		

All results in mg/L unless indicated otherwise

# TROPHIC CLASSIFICATION: 1999

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	4	5	2	11	Eutro.

## COMMENTS:

- 1. This is a shallow, weedy, light tea-colored, acidic pond. It was eutrophic with relatively high conductivity, sodium and chloride levels, suggestive of road salt runoff.
- 2. Shoreline was all privately owned.
- 3. No inlets; pond is spring fed. This may be the reason for the 5° C temperature difference between top and bottom despite the shallow depth (2 meters).

111-66

#### FIELD DATA SHEET

LAKE: CARR POND DATE: 06/24/1999

TOWN: HOPKINTON WEATHER: Hot, Partly Cloudy

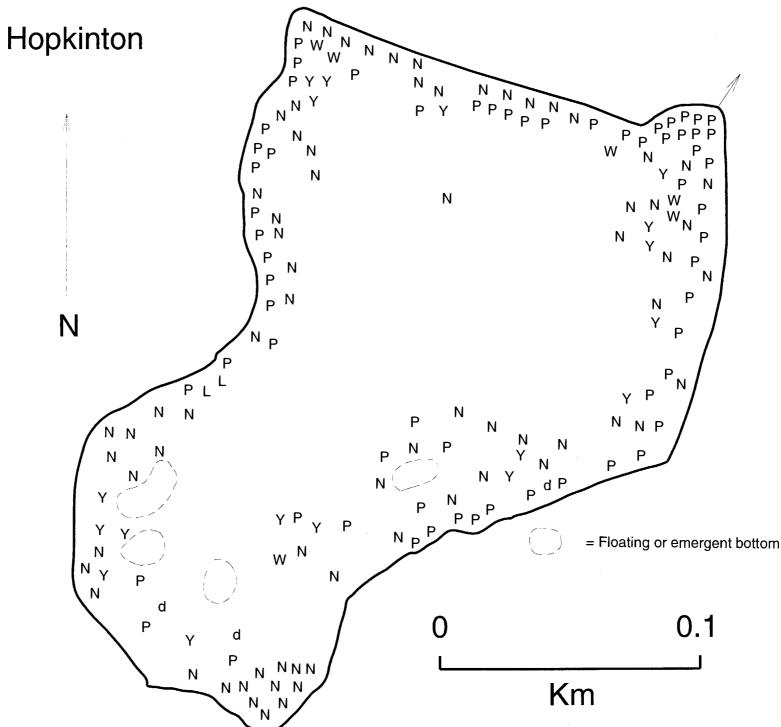
DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	27.8	8.0	102 %
1.0	25.6	7.9	96 %
2.0	22.5	3,.3	38 %
····			

SECCHI DISK (m): 1.9 COMMENTS:

BOTTOM DEPTH (m): 2.5

TIME: 1209

\*Dissolved oxygen values are in mg/L



III-68

#### AQUATIC PLANT SURVEY

TOWN: HOPKINTON LAKE: CARR POND DATE: 06/24/1999 PLANT NAME ABUNDANCE Key GENERIC COMMON White water lily Common/Abun N Nymphaea Pontederia cordata Pickerelweed Р Common W Potamogeton Pondweed Scattered Y Nuphar Yellow water lily Scattered  $\mathbf{L}$ Chamaedaphne calyculata Leatherleaf Sparse Sparse Dulichium arundinaceum Three-way sedge

OVERALL ABUNDANCE: Abundant

## GENERAL OBSERVATIONS:

- 1. Plants were common around most of the shoreline.
- 2. A great blue heron was observed.